



12

Industrial Gateways

- ☞ 12-4 Intelligent Communication Gateways
- ☞ 12-7 Fieldbus & Modbus Gateways
- ☞ 12-8 Intelligent IoT I/O Gateways
- ☞ 12-9 Intelligent Remote Terminal Units



Industrial Gateways

Introduction

Advantech offers a diverse selection of industrial gateways and cutting-edge data monitoring software tailored to your data management needs in different settings. Our gateways, equipped with advanced protocol conversion capabilities, act as versatile bridges connecting various networks. They effortlessly link legacy devices to the cloud, making them an ideal solution for a myriad of industrial applications.

The gateways bundled with EdgeLink software, Node-RED, and Python edge data acquisition solutions are designed to enable smooth data flow across diverse protocols and simplify remote monitoring. These solutions play a pivotal role in infrastructure facility monitoring and management of renewable energy systems, offering enhanced efficiency and reliability.

Edge-to-Cloud Connectivity

Advantech provides different types of edge data acquisition devices with various data monitoring software to meet all your needs for data management.

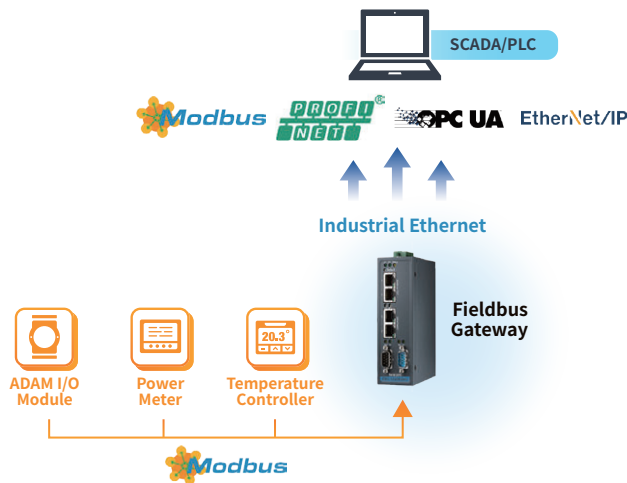


Industrial Gateways

ECU-1000 Series

Intelligent Communication Gateways

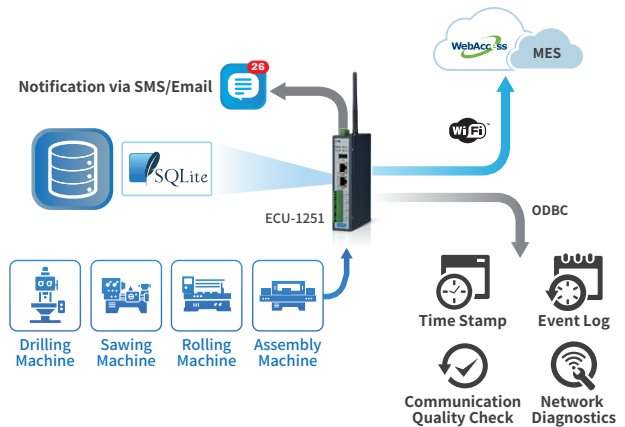
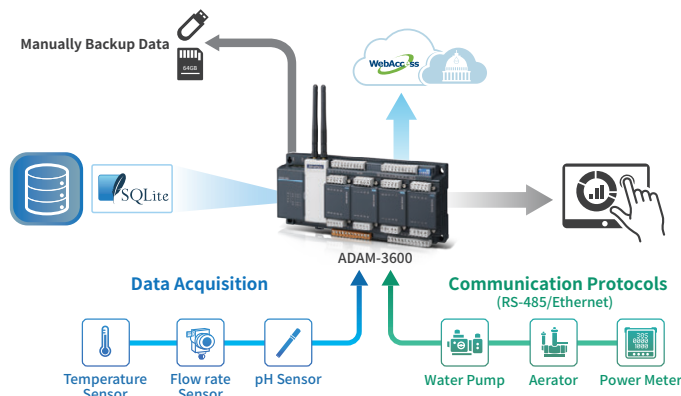
The ECU-1000 series is a RISC-based gateway with robust platform design, wireless and Ethernet communication, multiple protocol support, and EdgeLink integration. It is especially designed for energy management and equipment monitoring applications related to building, smart manufacturing, and smart grid.



ADAM-6700

I/O Device Gateways

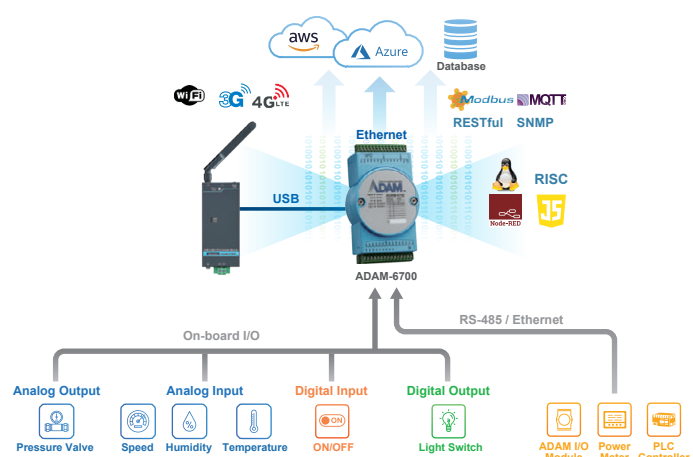
The ADAM-6700 is an all-in-one intelligent IoT I/O gateway that provides an integrated solution in the form of a Linux-based gateway capable of performing multiple tasks at the edge. The ADAM-6700 is equipped with a wide range of I/O for comprehensive data acquisition functionalities.



EKI-1200 Series

Fieldbus and Modbus Gateways

EKI-1200 Fieldbus/Modbus gateways are serial-to-Ethernet solutions that convert between various protocols. They provide a simple and cost-effective way to bring remote management and data accessibility to thousands of devices that cannot otherwise connect to a network.



ADAM-3600

Intelligent Remote Terminal Units (RTUs)

The ADAM-3600 is an intelligent remote terminal unit with multiple wireless function capabilities, multiple I/O selections, a wide temperature range, and flexible communication protocols for oil, gas, and water applications.

- 1 Edge Software & Industry Solutions
- 2 Intelligent HMI & Monitors
- 3 Automation Computers
- 4 Intelligent Systems
- 5 Mission Critical CompactPCI Platforms
- 6 Intelligent Transportation & Substation Certified Systems
- 7 Industrial Server & Cloud Solutions
- 8 AI & Advanced Computer Vision
- 9 Video Infrastructure Solutions
- 10 Network & Security Solutions
- 11 Industrial Communication
- 12 Industrial Gateways
- 13 EtherCAT Solutions & Automation Controllers
- 14 Intelligent Motion Control Solutions
- 15 Data Acquisition (DAQ) Solutions
- 16 Remote I/O, Wireless I/O & Sensors
- 17 Serial/USB Communications

Intelligent Communication Gateways



Protocol Conversion and Edge to Cloud Solution

- EdgeLink bundle with protocol support for data from field devices.
- No coding support for Azure AWS/ Cumulocity Sparkplug MQTT.
- OPCUA/ODBC/JDBC IT software and SQL database for data support.



Open Platform and Versatile I/Os

- Linux environment offers open and standard platform.
- Develop your own applications with C, Python, or 3rd party libraries.
- Multiple communication interfaces.
- Provides Ethernet & serial ports, versatile of I/O such as digital inputs, relay outputs, and CANbus.



Industrial Grade Design and High Reliability

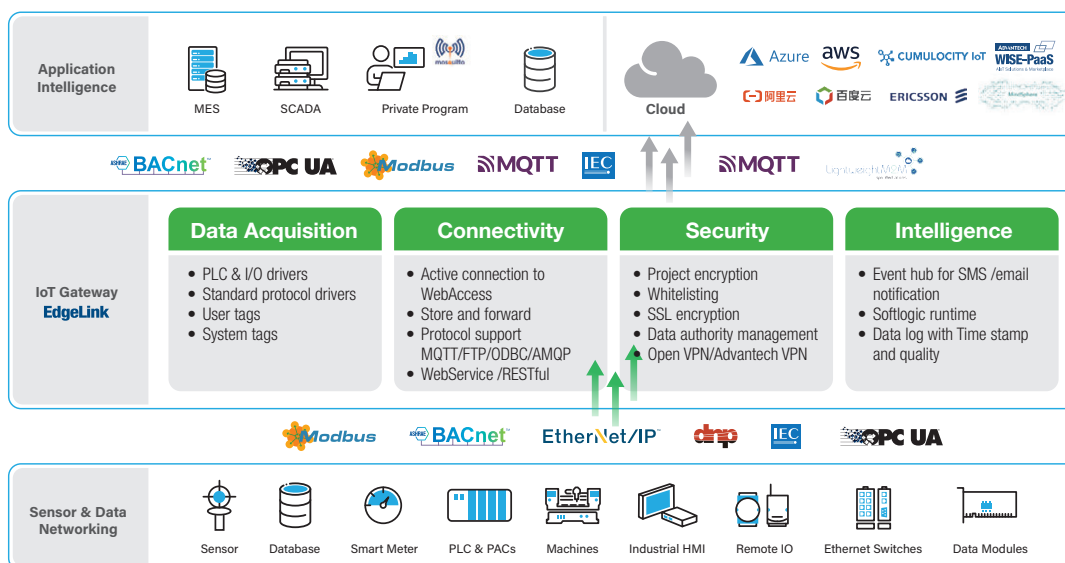
- Designed with industrial grade IC with long MTBF.
- IEC standard fulfills all mission critical applications.
- Wide operating temperature range (40 ~ 70°C).
- Battery powered RTC, independent WDT, and TPM support.



Azure and AWS Certified Device

- Built in EdgeLink allows users to set up cloud solutions and manage the entire lifecycle of equipment, monitor factory energy consumption, and analyze renewable energy efficiency through AWS or Azure services.

EdgeLink IoT Gateway Software Architecture



Intelligent Communication Gateways



Model		ECU-1152	ECU-1051	ECU-1251	ECU-1251D	ECU-1251 V2
System	CPU	Arm® Cortex™ A8 800MHz	Arm® Cortex™ A8 600MHz	Arm® Cortex™ A8 800MHz	Arm® Cortex™ A8 600MHz	Arm® Cortex™ A8 600MHz
Memory		512MB DDR3L	256MB DDR3L	256MB DDR3L	256MB DDR3L	2GB DDR3L
System Storage		4GB micro SD card	512MB NAND flash	4GB micro SD card	512G NAND flash	16GB eMMC
Serial	Number of Ports	6	2	4	2	4
Port	Type	RS-232/485	RS-232/485	RS-232/485	RS-232/485	RS-232/485
CAN Port	Number of Ports	–	–	–	–	–
AI/O	Number of Ports	–	–	–	–	–
DI/O	Number of Ports	–	–	–	4DI/4DO	–
Network Port	Number of Channels	2	2	2	2	2
	Speed	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps
USB		1	1 (ECU-1051TL-R10AB)	1	–	1
TPM2.0		–	–	–	–	TPM2.0
Wireless Expansion	SIM Card Slots	1	2	1	2	1
	Expansion Slots	1 x mini-PCIe	1 x mini-PCIe	1 x mini-PCIe	1 x mini-PCIe	1 x mini-PCIe
Storage Expansion		1 x micro SD slot	1 x micro SD slot	1 x micro SD slot	1 x micro SD slot	1 x micro SD slot
LED Indicators		PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN
EdgeLink	Communication Protocols	OPC-UA Client & Server, BACNet/IP Client & Server, Modbus RTU/TCP, IEC-60870-5-101, IEC-60870-5-103, IEC-60870-5-104, DNP3, IEC-61850				
	Cloud Communication	MQTT, EdgeHub, AWS, Azure, LwM2M, Google Cloud IoT Core and more				
	PLC Support	Siemens/ Allen-Bradley/ Schneider/ Mitsubishi/ Omron/ Honeywell/ Yokogawa/ Delta/ Panasonic and more				
	VPN Client	OpenVPN				
	Data Logger	Realtime data logger				
Operating System		RT-Linux	RT-Linux	RT-Linux	RT-Linux	RT-Linux
Operating Temperature		-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)
Certification		CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Dimension (W x H x D)		190 x 110 x 36.4 mm	30 x 93 x 93.4 mm	30 x 140 x 95 mm	30 x 140 x 95 mm	30 x 140 x 95 mm
Power Requirement		10-30V _{DC}				
Power Consumption		2.4W @24V _{DC}	2.4W @24V _{DC}	2.4W @24V _{DC}	2.4W @24V _{DC}	2.4W @24V _{DC}

✓: supported, –: not supported, △: optional

1

Edge Software & Industry Solutions

2

Intelligent HMI & Monitors

3

Automation Computers

4

Intelligent Systems

5

Mission Critical CompactPCI Platforms

6

Intelligent Transportation & Substation Certified Systems

7

Industrial Server & Cloud Solutions

8

AI & Advanced Computer Vision

9

Video Infrastructure Solutions

10

Network & Security Solutions

11

Industrial Communication

12

Industrial Gateways

13

EtherCAT Solutions & Automation Controllers

14

Intelligent Motion Control Solutions

15

Data Acquisition (DAQ) Solutions

16

Remote I/O, Wireless I/O & Sensors

17

Serial/USB Communications

Intelligent Communication Gateways



Model		 ECU-1252	 ECU-1260	 ECU-1170	 ECU-150	 ECU-1370
System	CPU	Arm® Cortex™ A9 600MHz	Arm® Cortex™ A35 Quad-core, 1G	Arm® Cortex™ A55 Quad-core, 1.8G	Arm® Cortex™ A53 i.MX8M Quad-Core, 1.3G	Arm® Cortex™ A53 i.MX8M Quad-Core, 1.3G
Memory		2GB DDR3L	2GB DDR3L	4GB LPDDR4	2GB/4GB LPDDR4	4GB LPDDR4
System Storage		16G eMMC	16GB eMMC	32GB eMMC	16GB/32GB eMMC	32GB eMMC
Serial	Number of Ports	2	3	8	2	1
Port	Type	RS-232/485	RS-232/485	RS-232/485	RS-232/485	RS-485
CAN Port	Number of Ports	2	1	2	–	1
AI/O	Number of Ports	–	–	2AI	–	–
DI/O	Number of Ports	–	–	20DI/6DO/8Relay	–	24DI/6Relay
Network Port	Number of Channels	2	2	4	2	3
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
USB		–	–	2	1	2
TPM2.0		–	–	–	TPM2.0	–
Wireless Expansion	SIM Card Slot	1	1	2	1	–
	Expansion Slots	1 x mini-PCIe	1 x mini-PCIe	1 x mini-PCIe 1 x M.2 B key	1 x mini-PCIe	–
Storage Expansion		1 x micro SD slot	1 x micro SD slot	1 x micro SD slot	1 x micro SD slot	1 x micro SD slot
LED Indicators		PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN
EdgeLink	Communication Protocols	OPC-UA Client & Server, BACNet/IP Client & Server, Modbus RTU/TCP, IEC-60870-5-101, IEC-60870-5-103, IEC-60870-5-104, DNP3, IEC-61850				–
	Cloud Communication	MQTT, EdgeHub, AWS, Azure, LwM2M, Google Cloud IoT Core and more				
	PLC Support	Siemens/ Allen-Bradley/ Schneider/ Mitsubishi/ Omron/ Honeywell/ Yokogawa/ Delta/ Panasonic and more				
	VPN Client	OpenVPN				
	Data Logger	Realtime data logger				
Operating System		RT-Linux	Yocto	Yocto	Yocto/Ubuntu	Ubuntu
Operating Temperature		-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 80°C (-40 ~ 176°F)
Certification		CE/FCC	CE/FCC	CE/FCC	CE/FCC/UL	CE/FCC/UL
Dimension (W x H x D)		30 x 140 x 95 mm	30 x 140 x 96.5 mm	183 x 108 x 44 mm	30 x 100 x 93 mm	65.7 x 140 x 93 mm
Power Requirement		10-30V _{DC}				
Power Consumption		2.4W @24V _{DC}	2.4W @24V _{DC}	6.8W @24V _{DC}	8W @24V _{DC}	6.8W @24V _{DC}

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Fieldbus & Modbus Gateways

Fieldbus Gateways



Model	EKI-1242IEIMS	
Description	Industrial Fieldbus Gateway	
Connectivity	10/100Base-TX, Fixed	4
	RS-232/422/485	2
	Serial Connector Type	DB9 male
Enclosure & Mount Kit	Enclosure	IP30
	DIN-rail	✓
	Wall	✓
Power	Power Input (V _{DC})	12~48V
	Power Connector	Terminal block
	Power Consumption (12/24/48V _{DC}) Watts	5.2W
Environment	Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)
	Operating Humidity	10~95% RH
Software	Network Protocol	Modbus RTU/TCP EtherNet/IP PROFINET OPC UA
	Configuration Options	Web-based
	Authentication	Username/Password
	Standard Operation Mode	Modbus RTU/TCP Client Ethernet/IP Adapter PROFINET IO-Device OPC UA Server
Certification	UL 62328-1	✓
	CE	✓
	FCC	✓

Modbus Gateways



Model	EKI-1211	EKI-1221 I/C	EKI-1222 I/C	EKI-1224 I/C
Description	1-Port Modbus Gateway	1-Port Modbus Gateway	2-Port Modbus Gateway	4-Port Modbus Gateway
Connectivity	10/100Base-TX, Fixed	1	2	2
	RS-232/422/485	1	2	4 (CI version: RS-422/485)
	Serial Connector Type	DB9 Male	DB9 Male	DB9 Male
Enclosure & Mount Kit	Enclosure	IP30	IP30	IP30
	DIN-rail	✓	✓	✓
	Wall	✓	✓	✓
Power	Power Input (V _{DC})	9~36V	2* (12~48V)	2* (12~48V)
	Power Connector	Terminal block	Terminal block	Terminal block
	Power Consumption (12/24/48V _{DC}) Watts	1W	3.2W	4.1W
Environment	Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)	-10 ~ 60°C (14 ~ 140°F) 'CI & I' models: -40 ~ 80°C (-40 ~ 176°F)	-10 ~ 60°C (14 ~ 140°F) 'CI & I' models: -40 ~ 80°C (-40 ~ 176°F)
	Operating Humidity	10~95% RH	10~95% RH	10~95% RH
Software	Network Protocol	Modbus RTU, Modbus TCP, Modbus ASCII	Modbus RTU, Modbus TCP, Modbus ASCII	Modbus RTU, Modbus TCP, Modbus ASCII
	Configuration Options	Windows Utility, Web Browser	Windows Utility, Web Browser	Windows Utility, Web Browser
	Standard Operating Mode	Modbus RTU Client / Server mode Modbus ASCII Client / Server mode	Modbus RTU Client / Server mode Modbus ASCII Client / Server mode	Modbus RTU Client / Server mode Modbus ASCII Client / Server mode
	Standard Operating Mode	Modbus RTU Client / Server mode Modbus ASCII Client / Server mode	Modbus RTU Client / Server mode Modbus ASCII Client / Server mode	Modbus RTU Client / Server mode Modbus ASCII Client / Server mode
Certification	UL 62328-1	✓	✓	✓
	CE	✓	✓	✓
	FCC	✓	✓	✓
	Hazardous Location (Class I, Division 2)	—	✓	✓

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1

Edge Software & Industry Solutions

2

Intelligent HMI & Monitors

3

Automation Computers

4

Intelligent Systems

5

Mission Critical CompactPCI Platforms

6

Intelligent Transportation & Substation Certified Systems

7

Industrial Server & Cloud Solutions

8

AI & Advanced Computer Vision

9

Video Infrastructure Solutions

10

Network & Security Solutions

11

Industrial Communication

12

Industrial Gateways

13

EtherCAT Solutions & Automation Controllers

14

Intelligent Motion Control Solutions

15

Data Acquisition (DAQ) Solutions

16

Remote I/O, Wireless I/O & Sensors

17

Serial/USB Communications

Intelligent IoT I/O Gateways



Model		ADAM-6750	ADAM-6717	ADAM-6760D
CPU		Arm® Cortex™ A8 32-bit 1GHz		
Memory		NAND flash 512MB		
RAM		DDR3L 512MB		
External Storage		microSD (Optional)		
OS		Real-time Linux V3.12		
Programming		Node-Red (Graphic programming environment based on javascript), EdgeLink, Linux C		
Operating Temperature		-40 ~ 70°C (-40 ~ 158°F)		
Interface	RS-485	2	2	2
	LAN	2	2	2
	USB	1 x USB Type-A, 1 x Micro USB		
Digital Input	Channel	12	5	8
	Type	Dry contact Logic 0: open Logic 1: closed to GND Wet contact logic 0: 0 ~ 3 V _{DC} logic 1: 10 ~ 30 V _{DC}	Dry contact Logic 0: open Logic 1: closed to GND Wet contact logic 0: 0 ~ 3 V _{DC} logic 1: 10 ~ 30 V _{DC}	Dry contact Logic 0: open Logic 1: closed to GND Wet contact logic 0: 0 ~ 3 V _{DC} logic 1: 10 ~ 30 V _{DC}
	Counter Input	3kHz	–	3kHz
Digital Output	Channel	12	4	–
	Voltage	Sink 30 V _{DC} , 0.1A max. per channel	Sink 30 V _{DC} , 0.1A max. per channel	Sink 30 V _{DC} , 0.1A max. per channel
	Pulse Output	3kHz	–	–
Analog Input	Channel	–	8	–
	Sampling Rate	100 Hz (total)		
Relay Output	Channel	–	–	8
	Contact Rating (Resistive Load)	–	–	30 V _{DC} @ 1 A
Dimension (W x H x D)		70 x 122 x 38 mm		



Model	ADAM-6700E				
Description	USB to Mini-PCle adapter module	Accessories	Type	Part Number	Description
Sim Card Slot	1 x Nano SIM card slot		Wall-mount kit	1960094069N001	Wall-mount kit for ADAM-6700E 432C
USB Port	Micro USB Type-B		USB molding cable	96PD-YH3874	USB molding cable, 90 degrees
Mini-PCle Slot	Wi-Fi/3G/4G		Wi-Fi 2.4G	96PD-RYUW131	2.4GHz Wi-Fi full/half size Mini-PCle card
Power Input	10 ~ 30 V _{DC}		LTE-Cat4/3G	96PD-EC25EFA	Quectel 4G(Cat.4), mini-PCle, Europe, EMEA, South Korea, Thailand, India (Manufacturer P/N: EC25EFA-MINIPCE)
Operating Temperature	-20°C ~ 70°C			96PD-EC20CEFAG	Quectel 4G(Cat.4) R2.1, mini-PCle, China (Manufacturer P/N: EC20CEFAG-MINIPCE)

✓: supported, –: not supported, △: optional

Intelligent Remote Terminal Units (RTUs)



Expansion Modules



Model		ADAM-3600
Description		Intelligent RTU
System	CPU	Arm® Cortex™ A8 AM3352
	Operating System	Linux RT 3.12
	Programming Interface	C (Linux), IEC-61131-3
	Communication Protocols	Modbus/RTU, Modbus/TCP, DNP3, IEC-60970-104, OPCUA
	Number of Ports	Cellular, Wi-Fi, Zigbee
Serial Port	Number of ports	3
	Type	1 x RS-232/485, 2 x RS-485
Network Port	Number of Channels	2
	Number of Independent IP Addresses	2
	Speed	10/100 Mbps
	IP Specifications	IPv4/IPv6
I/O	Onboard I/O	8 analog inputs, 8 digital inputs, 4 digital outputs
	Expansion Slots	4
USB	USB 2.0	1
Display Interface	VGA	1
	LED	System, serial, Ethernet, digital I/O, programmable
Storage Interface	SD	1 x SD slot
Operating Temperature		-40 ~ 70°C (-40 ~ 158°F)
Certification		CE/FCC
Part Number		ADAM-3600-C2GL1A1E

Model	Category	Channel	Part Number
ADAM-3617	Analog input module	4	ADAM-3617-AE
ADAM-3618	Analog input module	4, thermocouple	ADAM-3618-AE
ADAM-3624	Analog output module	4	ADAM-3624-AE
ADAM-3651	Digital input module	8	ADAM-3651-AE
ADAM-3656	Digital output module	8	ADAM-3656-AE
ADAM-3613	Analog input module	4, RTD	ADAM-3613-AE
ADAM-3668	Relay module	4	ADAM-3668-AE

Analog Input	
Signal Input	Differential
Sampling Rate	10 Hz
Voltage Input	±10 V, ±2.5 V
Input Current	0~20 mA, 4~20 mA
Sensor Input	Thermocouple (type J, K, T, E, R, S, B) RTD (Pt100, Pt1000, Balco 500, Ni 518)
Resolution	16-bit

Analog Output	
Output Voltage	0~10 V
Output Current	0~20 mA, 4~20 mA
Resolution	12-bit

Digital Input	
Input Type	Sink
Rated Voltage	12/24 V _{DC}
Logic "0" Voltage	0~5 V _{DC}
Logic "1" Voltage	11~30 V _{DC}

Digital Output	
Output Type	Open collect
Output Voltage	8~30 V _{DC} @ max 200 mA

1

Edge Software & Industry Solutions

2

Intelligent HMI & Monitors

3

Automation Computers

4

Intelligent Systems

5

Mission Critical CompactPCI Platforms

6

Intelligent Transportation & Substation Certified Systems

7

Industrial Server & Cloud Solutions

8

AI & Advanced Computer Vision

9

Video Infrastructure Solutions

10

Network & Security Solutions

11

Industrial Communication

12

Industrial Gateways

13

EtherCAT Solutions & Automation Controllers

14

Intelligent Motion Control Solutions

15

Data Acquisition (DAQ) Solutions

16

Remote I/O, Wireless I/O & Sensors

17

Serial/USB Communications

Intelligent Remote Terminal Units (RTUs)



Model		ADAM-5630	ADAM-5630E
CPU		Arm® Cortex™ A8 AM3352 600MHz	Arm® Cortex™ A8 AM3352 600MHz
RAM		512 MB DDR3L	512 MB DDR3L
Flash ROM		–	–
Flash Memory		–	–
Flash Disk		1 GB	1 GB
OS		RT-Linux	RT-Linux
Control Software		Linux C SDK KW Softlogic	Linux C SDK KW Softlogic
Real-time Clock		✓	✓
Watchdog Timer		✓	✓
COM1		RS-232/485	RS-232/485
COM2		RS-485	RS-485
COM3		RS-485	RS-485
COM4		RS-232/485	RS-232/485
I/O Slots		4	8
Power Consumption		8W	
Isolation	Communication	2500 V _{DC} (COM1–COM3)	
	Communication Power	3,000 V _{DC}	
	I/O Module	3,000 V _{DC}	
Diagnosis	Status Display	Power, RUN, Error, BAT, user define (for 5630 series only)	
	Self Test	Yes, while ON	
	Software Diagnosis	✓	
Communication	Interface	RS-232/485	
	Speed	300 bps ~ 115.2 kbps	
	Max. Distance	4,000 feet (1.2 km)	
	Max. Nodes	32	32
	Protocol	User Defined, Modbus/RTU Modbus/TCP, SNMP	User Defined, Modbus/RTU Modbus/TCP, SNMP
	Remote I/O	Modbus Device	
	Power Requirements	10~30 V _{DC}	
Environment	Operating Temperature	-20 ~ 70°C	
	Storage Temperature	-25 ~ 85°C (-13 ~ 185°F)	
	Humidity	5 ~ 95%	
Dimension (W x H x D)		231 x 110 x 75 mm	355 x 110 x 75 mm

*Refer to Modular I/O Systems: ADAM-5000 for more I/O information (CH16-6)

✓: supported, –: not supported, △: optional

